

**Longhorned Grasshopper, *Conocephalus saltator* (Saussure),
as a Pest of Pineapples in Hawaii.**

(Presented at the meeting of February 7, 1929)

BY J. F. ILLINGWORTH

This grasshopper has long been recognized as a valuable predacious species, feeding upon many kinds of minute insects. In pineapple fields I have recorded it as a real check upon the mealy-bug *Pseudococcus brevipes* (Cockerell). In fields, however, that adjoin grass areas, these hoppers congregate in such numbers as to be a real menace. Under such conditions there is apparently not enough insect food for them and they return to their ancestral diet, eating the plants.

During dry, hot weather they cause some damage to the leaves, gnawing them at their tips. This gives the plants a ragged appearance, but usually results in no serious injury. During investigation of the so-called Kauai disease, I frequently observed these grasshoppers feeding upon the softer parts of the pineapple flowers, and in some cases even gnawing the harder bracts covering the fruitlets. I was much surprised, however, to find that the females were laying their eggs in the fruits. Swezey has recorded these insects laying their eggs in the sheath of sugar cane leaves, but no injury resulted to the plant.

At the time of flowering, of course, the pineapple is small, hardly larger than a goose egg. The female grasshoppers sitting about on the fruit, find it very convenient to shove the ovipositor into the heart of the tender flowers, the number of eggs deposited in each case being limited, usually from one to three. Wherever the ovipositor ruptures the floor of the calyx cavity, as it occasionally does, fungi gain an entrance and that part of the fruit begins to break down. In some instances, the dry, localized rot, so characteristic of Kauai disease, may result from such infection.

An examination of the tops on the fruits, disclosed many of the grasshopper eggs, thrust here and there, between the short leaves. In a few instances the ovipositor had gone so deeply as

to puncture the stem, leaving the egg deeply imbedded in the solid tissue.

Insects in the Waiahole Ditch

BY J. F. ILLINGWORTH

(Presented at the meeting of May 2, 1929)

I was surprised, April 30, 1929, to find insects literally by the tubful, that had fallen into this long open canal. At the point where the ditch crosses the Kamehameha Highway, at Waipio, there is a back eddy where the insects pile up. The collection floating on the surface of the water was a writhing mass of millions of insects. Those that resisted drowning worked their way to the top, and while resting on the bodies of those submerged, some were able to take wing. A field luna was circumventing this escape of the pests by dipping up this floating collection and placing it on a fire.

Examination showed that the mass was composed largely of the first two species of the following list:

1. *Adoretus sinicus* Burm. was present in countless numbers. These beetles do not easily succumb to drowning, so many eventually escape by taking wing.

2. *Charadromyia torrenticola* Terry. This chironomid fly is a natural inhabitant of the ditch. The floating mass was composed largely of their pupae and cast larval skins. The adults were emerging in numbers. Terry described this species from Hawaii and Maui in the Proceedings of the Hawaiian Entomological Society Vol. 2, p. 291, July, 1913. I have been unable to find any published reference to its occurrence on Oahu. Evidently it is present in the streams of the upper reaches of the Waiahole Ditch, and thus is carried down to the lower levels.

3. *Scolia manilae* Ashm. is unfortunately a frequent victim of the open waterway. Possibly the smell of the *Adoretus* beetles is an attraction to them, since they parasitize the grubs of this pest. I say this because I found these wasps congregating on the pile where the beetles had been dumped out of the ditch.

4. *Labidura riparia* (Pallas). Earwig.

5. *Periplaneta australasiae* (Fab.). Australian Roach.

6. *Diploptera dytiscoides* (Serv.). Cypress Roach.

7. *Carpophilus humeralis* (Fab.). Pineapple beetle.